

That which is claimed is:

1. A method of protecting a civil infrastructure substrate, comprising:
providing a composition comprising carbon dioxide and a fluoropolyether; and
applying said mixture to said civil infrastructure substrate in an amount
sufficient to form a protective coating thereon.
2. A method according to claim 1, wherein said civil infrastructure substrate
is selected from the group consisting of stone, ceramic, cement, brick, and concrete.
3. A method according to claim 1, wherein said civil infrastructure substrate
is wood.
4. A method according to claim 1, wherein said fluoropolyether is a
perfluoropolyether.
5. A method according to claim 1, wherein said fluoropolyether has at least one
anchoring group covalently bound thereto.
6. A method according to claim 5, wherein said anchoring group is selected
from the group consisting of amides, esters, carboxylic acids, urethanes, ureas, and
mercaptans.
7. A method according to claim 5, wherein said anchoring group is an amide,
ester, or carboxylic acid.
8. A method according to claim 5, wherein said anchoring group is an amide.
9. A method according to claim 1, wherein said composition is a single phase
mixture.
10. A method according to claim 1, wherein said carbon dioxide is a liquid.
11. A method according to claim 1, wherein said carbon dioxide is a
supercritical fluid.

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12. A method according to claim 1, wherein said applying step is carried out by spraying said composition on said substrate.

13. A method according to claim 12, wherein said spraying step is carried out by atomizing said composition.

14. A method according to claim 12, wherein said carbon dioxide is a supercritical solution and said spraying step is carried out by rapid expansion of said supercritical solution.

Sub A2 15. A composition useful for protecting civil infrastructure, said composition comprising a mixture of carbon dioxide and a fluoropolyether, said fluoropolyether having at least one anchoring group covalently joined thereto.

Sub C27 16. A composition according to claim 15, wherein said fluoropolyether is a perfluoropolyether.

17. A composition according to claim 15, wherein said anchoring group is selected from the group consisting of amides, esters, carboxylic acids, urethanes, ureas, and mercaptans.

18. A composition according to claim 15, wherein said anchoring group is an amide, ester, or carboxylic acid.

19. A composition according to claim 15, wherein said anchoring group is an amide.

20. A composition according to claim 15, wherein said composition is a single phase mixture.

21. A composition according to claim 15, wherein said carbon dioxide is a liquid.

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Sub.
C2
cont.

22. A composition according to claim 15, wherein said carbon dioxide is a supercritical fluid.

Sub
A3

23. A method of protecting a civil infrastructure substrate, comprising:
providing a composition comprising carbon dioxide and a fluocarbon elastomer; and
applying said mixture to said civil infrastructure substrate in an amount
5 sufficient to form a protective coating thereon.

24. A method according to claim 23, wherein said civil infrastructure substrate is selected from the group consisting of stone, ceramic, cement, brick, and concrete.

25. A method according to claim 23, wherein said civil infrastructure substrate is wood.

26. A method according to claim 23, wherein said fluorocarbon elastomer is an amorphous fluoroolefin polymer.

27. A method according to claim 23, wherein said composition is a single phase mixture.

28. A method according to claim 23, wherein said carbon dioxide is a liquid.

29. A method according to claim 23, wherein said carbon dioxide is a supercritical fluid.

30. A method according to claim 23, wherein said applying step is carried out by spraying said composition on said substrate.

31. A method according to claim 30, wherein said spraying step is carried out by atomizing said composition.

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32. A method according to claim 30, wherein said carbon dioxide is a supercritical solution and said spraying step is carried out by rapid expansion of said supercritical solution.

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